

TUNGUS®



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GENERATOR OF GAS FIRE EXTINGUISHING GGFE-1.0
Passport
Manual instructions GGFE-1.0 PS



1 PURPOSE

1.1 Generator of gas fire extinguishing (hereinafter referred to as the GGFE or generator) GGFE-1.0 TU 4854-019-54572789-11 of two versions: ceiling-mounted (c) and wall-mounted (w) is intended for automatic extinguishing of fires subclass A2, class B according to GOST 27331-87, and class E according to FZ No 123 "Technical Regulations of Fire Safety Requirements". Fire extinguishing is performed by volumetric method. GGFE versions differ from each other in bracket construction purposed for generator mounting to a bearing construction.

1.2 GGFE are purposed for extinguishing fires in different stationary electrotechnical devices of board implementation and technological premises of small volume on conditions that there are no people attending of the volume protected.

1.3 GGFE are not purposed for fire extinguishing:

- In explosion-hazardous premises (zones);
- Of fibrous, free-flowing, porous, and other burning materials inclined to self-ignition and smouldering inside the volume (sawdust, cotton, grass flour and others);
- Of substances burning of which can occur without air access.

1.4 Temperature range of GGFE operation is from -30 °C to +50 °C under relative humidity 25 °C.

1.5 GGFE does not contain ozone-depleting substances.

1.6 Examples of the GGFE marking (model) records when ordered:
GGFE-1.0(c) TU 4854-019-54572789-11 – generator of ceiling mounting;
GGFE-1.0(w) TU 4854-019-54572789-11 – generator of wall mounting;

where GGFE - generator of gas fire extinguishing;

1.0 – volume to be protected with one GGFE is not less than 1 m³ for fires subclass A, and class B;

(c) – ceiling mounting of generator;

(w) – wall mounting of generator;

TU 4854-019-54572789-11 – designation of normative documentation.

2 TECHNICAL CHARACTERISTICS

2.1 Main technical characteristics of GGFE are given in Table 1.

Table 1

Name	Value
1 Dimension, mm, not more than: GGFE of ceiling mounting: - diameter - height (with a bracket installed) GGFE of ceiling mounting: - width - height (with a bracket installed)	106 335 109 395
2 Total weight of GGFE, kg, not more than	5.5
3 MPP fast action (time from the moment of sending impulse to GGFE triggering element to the moment of gaseous firefighting substance emission), sec, not more than	1
4 Time of gaseous firefighting substance ejecting, sec.	12...20
5 Maximal temperature of gases, °C, not more than: - at the output of GGFE; - at 120 mm from GGFE outlet hole	200 80
6 Maximal temperature of GGFE frame during and after its operation, °C, not more than:	300
7 Volume protected for extinguishing fires subclass A2, class B in premises with nonhermeticity parameter 0.044 m^{-1} , m^3	1.0
8 Circuit characteristics of electric triggering unit: - safe current of testing circuit, A, not more than - operating current, A, not less than: - electric resistance, Ohm	0.03 0.12 8...16

The structure of gaseous firefighting powder is given in Table 2.

Table 2

Component	Content, % (by volume)
CO ₂	38.8
N ₂	19.2
CO	9.2
H ₂	4.8
H ₂ O	27.0
O ₂	0.9
CH ₄	0.1

There are no solid parts in gaseous firefighting substance.

2.2 The rest technical features and requirements to the device correspond to TU 4854-019-54572789-11.

3 COMPLETENESS OF SET

3.1 GGFE set to be supplied includes:

- a) Generator TU 4854-019-54572789-11 – 1 item;
- b) Passport and manual instructions – 1 item;
- c) GGFE package – 1 item.

4 DESIGN AND OPERATION PRINCIPLE

4.1 GGFE design

4.1.1 GGFE (see Figure 1) consists of a case **1** where gas-generating element **2** with gas-generating compound **3** and electrical-triggering element **4** is placed. Free space of GGFE case **1** is filled with cooling tablets **5**. Filter-separator **6** is set for gaseous firefighting substance cleaning from mechanical impurities. Filter-separator outlet hole is blocked with safety membrane **7**, aperture of which is plugged with self-adhesive film PVC **8**. Generator has a grounding clamp **9**. GGFE is supplied with bracket **10** for ceiling mounting (see Figure **1a**) or bracket **11** for wall mounting (see Figure **1b**). To avoid membrane **7** and PVC **8** rupture during transportation, storage and installation the aperture of screw nut **12** is plugged with self-adhesive film **13** which is removed after device installation in the object.

4.2 Operation principle

4.2.1 After electric pulse sending to the outputs of electric triggering unit **4**, gas-generating compound **3** generates a gas which enters GGFE volume through lateral holes of gas-generating element case **2** filled with cooling tablets **5**. Passing through cooling tablets, a gas is exposed to a preliminary cleaning from mechanical impurities, becomes cool and thermally decomposes the tablets emitting an additional portion of gaseous firefighting substance. Gaseous substance enters a burning zone through a filter-separator **6**, where its full cleaning from mechanical impurities takes place.

9 WARRANTY

9.1 The factory-manufacturer guarantees the correspondence of GGFE to the requirements of technical specification if the Customer observes operation, transportation and storage conditions.

9.2 Service life is stated to be not more than 10 years and is estimated from the date of GGFE accepting by Quality Department of the factory-manufacturer.

9.3 The factory-manufacturer is not responsible for:

- misoperation if the owner does not observe operation rules;
- negligent storage and transportation of GGFE;
- passport loss;

- expiration of the service life stated from the date of GGFE accepting by Quality Department of the factory-manufacturer.

10 CERTIFICATE OF ACCEPTANCE AND SALE

Generator of gas fire extinguishing

GGFE-1.0(w) _____ GGFE-1.0(c)

(tick off the necessary)

corresponds to the requirements of TU 4854-019-54572789-11 and is considered to be fit for use.

Batch No _____

Manufacturing date _____
(month, year)

Inspector signature and stamp _____

Sold _____
(name of the Seller)

Sale date _____

Shop stamp

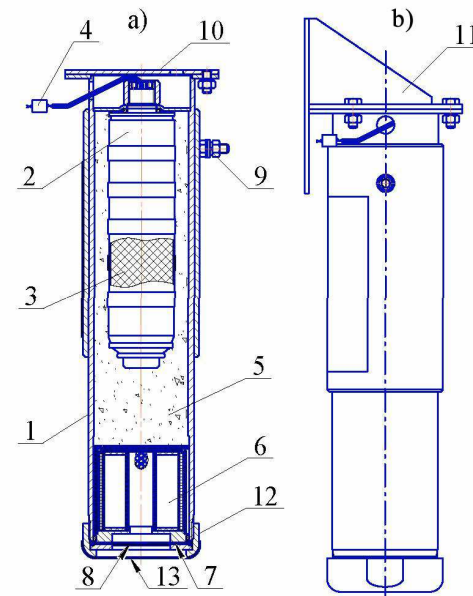


Figure 1

5 SAFETY MEASURES

5.1 Personnel admitted to GGFE maintenance must study the content of the present Passport and follow its requirements.

5.2 Before GGFE connecting, the output ends of the triggering unit should be closed by twisting not less than twice and sealed. GGFE connecting is performed only after its grounding. Check circuit integrity by safe continuous current (0.03_{0.005}) A after seal removing and disconnecting the output ends. Electric safety while GGFE assembling should be provided by meeting the requirements of PUE, PTE, PTB and PZSE.

5.3 After GGFE actuation it must not have case integrity breaking: burnouts, damages and so on.

5.4 After detecting the generator defects during the operation or after its service life, GGFE should be sent to the factory-manufacturer for utilization.

5.5 It is not allowed:

- GGFE keeping near heat sources;
- effecting rainfalls, direct sunlight, aggressive media, and moisture on GGFE;
- infliction of blows at GGFE case;
- dropping from the height more than 2 m;

- GGFE disassembling, introduction of changes in its construction, and its abuse;
- GGFE operating with damaged case (dents, cracks, through holes);
- GGFE outlet hole directing towards the human when working with GGFE.

5.6 It is allowed entering into premises protected after gaseous firefighting substance emission and fire suppression till the moment of ventilation finishing in respiratory organs isolating safety means only.

5.7 Entering in premises without respiratory organs isolating safety means is allowed only after burning products and gaseous firefighting device removing till the safe value (concentration).

5.8 It is necessary to leave premises after first signs of GGFE actuation occurrence.

6 PREPARATION OF GGFE TO OPERATION, LAYOUT AND MOUNTING

6.1 Unpack GGFE and examine the integrity of case.

6.2 Fasten bracket **10** (see Figure **1a**) on a ceiling or bracket **11** (see Figure **1b**) on a wall. Positions of holes in the bracket intended to fasten GGFE on the ceiling are given in Figure **2a**. Positions of holes in the bracket intended to fasten GGFE on the wall are given in Figure **2b**. It is allowed bracket mounting on a floor or on any other bearing surface with GGFE orientation at any angle.

6.3 Attach GGFE to the bracket and fasten the connection with screw nuts. Remove self-adhesive film **13** (see Figure **1**) from screw nut **12**.

6.4 It is not recommended to direct GGFE nozzle-spray towards places of hermetization loss of protected volume shielding (transoms, shutters, chinks) during GGFE installation.

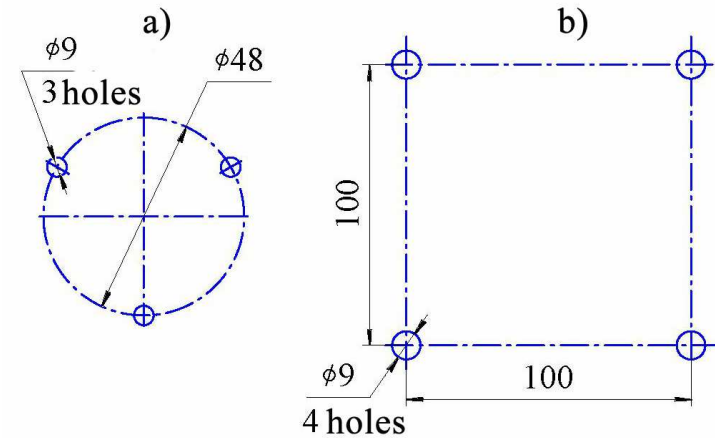


Figure 2

7 MAINTENANCE

7.1 Special technical maintenance within the stated service life, which equals 10 years, is not required. Examine the integrity of launching circuit, GGFE grounding availability, and self-adhesive PVC film covering of safe membrane hole once a quarter.

8 STORAGE AND TRANSPORTATION

8.1 GGFE refers to hazardous cargoes of 9 class, 9.1 subclass, 913 category; classification number is 9133 according to GOST 19433-88; UN number is 3363.

8.2 The MPP transportation and storage conditions should meet the requirements of OG-4 GOST 15150-69.

8.3 The MPP transportation in the factory packing at temperatures of minus 50 °C to plus 50 °C is allowed by all kinds of transport according to the rules of transporting the goods by this kind of transport and taking into account transport conditions – harsh environment (G), GOST 23170-78.

8.4 When GGFE stored and transported, conditions preventing them from mechanical damage, heating, direct sunlight, rainfalls and aggressive media should be provided.